(12) UK Patent Application (19) GB (11) 2 348 370 (13) A

(43) Date of A Publication 04.10.2000

(21) Application No 9907207.6

(22) Date of Filing 30.03.1999

(71) Applicant(s)
Gerwyn Tudor Hodges
18 The Glade, Daleside, Bryncethin, BRIDGEND, CF32 9BX, United Kingdom

(72) Inventor(s)
Gerwyn Tudor Hodges

(74) Agent and/or Address for Service
Gerwyn Tudor Hodges
18 The Glade, Daleside, Bryncethin, BRIDGEND, CF32 9BX, United Kingdom

(51) INT CL[7]
A61K 7/16 9/68 // A61P 31/04 39/00

(52) UK CL (Edition R)
A5B BFA B170 B180 B27Y B272 B827
U1S S2410

(56) Documents Cited
GB 1252545 A GB 0923165 A US 4647450 A

(58) Field of Search
UK CL (Edition Q) A5B BFA BLE
INT CL[8] A61K 7/16 9/68
Online: CAS ONLINE, EPODOC, PAJ, WPI

(54) Abstract Title

Chewing gum for oral hygiene containing magnesium trisilicate

(57) A sugar free tooth "n" gum chewing gum (FIG 1, not shown) has been impregnated with an effective concentration of magnesium trisilicate which neutralises plaque and food acids, and acts as a tooth polish during the chewing action. A number of further components may be added to the sugar free chewing gum. For example, the addition of calcium pyrophosphate provides an effective agent against plaque and tartar; the addition of an anti-bacterial artificial sweetener, such as xylitol, improves the anti-plaque action and eliminates the sugar substrate that plaque bacteria feed on. Extra artificial sweeteners like sorbitol, improve flavour. Other additives may include cetylpyridinium chloride, which is an anti-bacterial and mouth ulcer treatment, breath fresheners and different flavours to enhance the appeal of the product. Each stick of chewing gum may be hygienically wrapped in its own foil and paper wrapping and these may in turn be sold in plastic wrapped multi packs.

GB 2 348 370 A

TOOTH 'N' GUM

CHEWING GUM

FIG 1

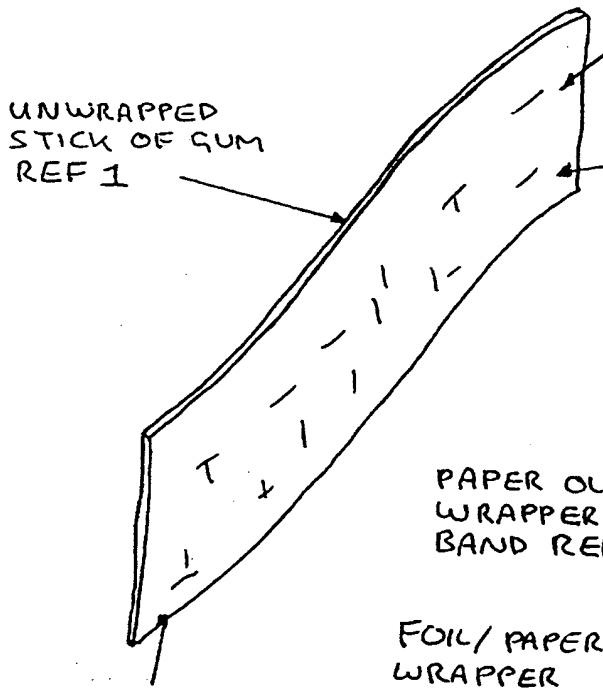


FIG 2

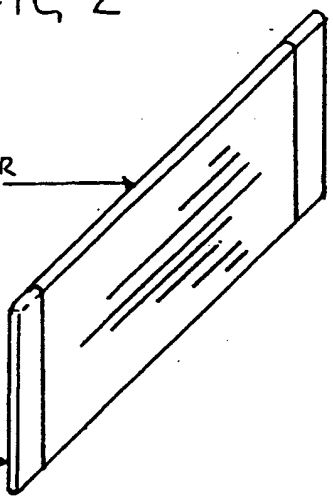
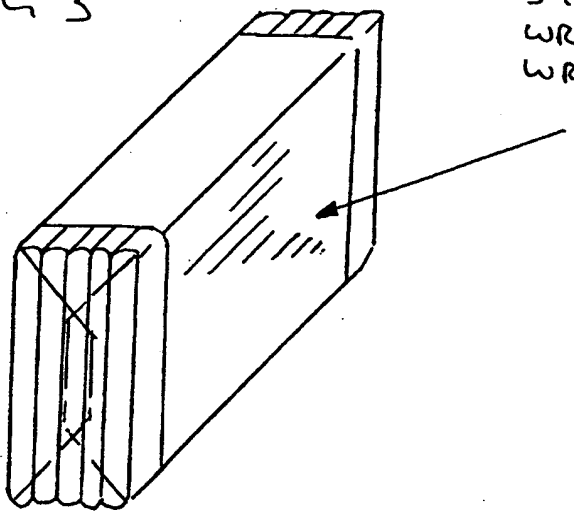


FIG 3



TOOTH "N" GUM CHEWING GUM

People have a problem with plaque bacteria, an oral parasite, using food sugars while producing acid and tartar. These acids attack the teeth and gums, while the plaque bacteria become protected by a callous of tartar. The bacteria undermine the gums and cause tooth decay and other medical problems such as gingivitis and halitosis. More recently, medical research has found a possible connection in some people between the plaque bacteria and heart disease.

To combat the plaque bacteria, people brush their teeth, use breath fresheners, dental floss, mouth wash, and even sprays. Brushing your teeth, however, is not convenient after every meal. Neither is using a tooth pick or dental floss, which are only partially effective anyway. The other methods are little more than sweets and the sprays are expensive and the liquid is soon swallowed and washed away by saliva making them a very short acting solution.Their bottles are also bulky.

According to the present invention, a magnesium trisilicate impregnated sugar free chewing gum is used to provide a convenient, potent and long acting delivery system for oral hygiene. Magnesium trisilicate being a tried and tested antacid and tooth polish.

The specific attributes that embody the invention will now be described by way of example with reference to accompanying drawings in which:-

Figure 1 shows the perspective of the tooth "n" gum chewing gum once it has been unwrapped.

Figure 2 shows a single stick of tooth "n" gum chewing gum wrapped in its own individual foil and paper wrapper.

Figure 3 shows a multi pack of tooth "n" gum chewing gum units wrapped in a single plastic wrapper for retail

Referring to the drawing, Fig 1 shows a typical stick of the medicated tooth "n" gum chewing gum once it has been unwrapped, REF 1. This gum has been impregnated with an effective concentration of a tried and tested antacid and tooth polish, magnesium trisilicate, REF 2. The tooth "n" gum chewing gum, REF 1, also has an additional anti bacterial and anti tartar agent, REF 3, such as calcium pyrophosphate. The gum REF 1, contains artificial sweeteners which also have an additional anti bacterial action, such as xylitol, REF 4. This eliminates the use of a sugar substrate that bacteria can use to multiply and produce more acid and tartar, while adding to the overall anti bacterial effectiveness.

The tooth "n" gum chewing gum seen in FIG 2, is seen wrapped in its individual foil and paper wrapper, REF 5. This is then held together in a paper band, REF 6. This improves the shelf life, hygiene and portability of the gum. Individual sticks of gum FIG 2, can be carried to be used specifically after a meal, taking up very little space and weighing very little. This is much more convenient than carrying a bottle of mouth wash or mouth spray.

The multi pack of tooth "n" gum chewing gum sticks in FIG 3, is seen as a number of sticks wrapped in a plastic tear to open wrapper, REF 7. This provides a convenient pack to carry in a pocket or a handbag to be used throughout the day after snacks and meals, whereas it is inconvenient for a person to brush their teeth or use a tooth pick in a restaurant or at work for instance.

Unlike the alternatives, the tooth "n" gum chewing gum FIG 1, is a small, light weight and effective delivery system for prolonged release of anti bacterial and anti tartar agents REF 3 and REF 4. The magnesium trisilicate REF 2, is a tried and tested antacid which also has a tooth polishing action. As a person chews the gum FIG 1, the magnesium trisilicate REF 2, helps to polish the teeth and neutralises plaque acids and food acids. The calcium pyrophosphate REF 3, kills the plaque bacteria and helps break up tartar formation. The artificial sweetener xylitol REF 4, also has an antibacterial action to enhance the action of the calcium pyrophosphate REF 3. The prolonged chewing action keeps the magnesium trisilicate REF 2, and antibacterial agents REF 3, in the mouth for longer than any other method. In addition, the chewing action causes the gum REF 1, and the magnesium trisilicate REF 2, to polish the teeth.

There are a number of modifications that could be introduced to enhance the appeal and effectiveness of the tooth "n" gum chewing gum FIG 1. These include the addition of other antibacterial agents such as cetylpyridinium chloride which also has an anti ulcer action. Also, the addition of breath freshners and a variety of flavours.

CLAIMS

1 A tooth "n" gum chewing gum consisting of a magnesium trisilicate impregnated sugar free chewing gum, is used to provide a convenient, potent and long acting delivery system for oral hygiene. Magnesium trisilicate being a tried and tested antacid and tooth polish.

2 A tooth "n" gum chewing gum as in Claim 1, that can additionally be impregnated with an effective anti plaque, anti tartar agent such as calcium pyrophosphate.

3 A tooth "n" gum chewing gum as in Claim 1 or Claim 2, that can additionally be impregnated with an anti bacterial artificial sweetener such as xylitol.

4 A tooth "n" gum chewing gum as in Claim 1 or Claim 2 or Claim 3, that can additionally be impregnated with antibacterial, anti mouth ulcer medication such as cetylpyridinium chloride.

5 A tooth "n" gum chewing gum as claimed in Claim 1 or Claim 2 or Claim 3 or Claim 4, that can additionally be impregnated with extra artificial sweeteners such as sorbitol, mannitol and sodium saccharin, to taste.

6 A tooth "n" gum chewing gum as in any preceding Claim that can additionally be impregnated with breath fresheners.

7 A tooth "n" gum chewing gum as in any preceding claim that can be produced in a variety of flavours.

8 A tooth "n" gum chewing gum substantially as described herein, with reference to Figures 1-3 of the accompanying drawing.

The Patent Office

INVESTOR IN PEOPLE

Application No: GB 9907207.6 **Examiner:** Dr Lawrence Cullen
Claims searched: 1-8 **Date of search:** 15 July 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): A5B (BFA, BLE)

Int Cl (Ed.6): A61K 7/16, 9/00

Other: Online: CAS ONLINE, EPODOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 1252545 A	(INDIANA UNIV.) see Table 1 & 2; page 4, lines 7 & 8.	1
A	GB 923165 A	(HOFFMAN LA ROCHE) see lines 20-40, page 1.	-
X	US 4647450 A	(PETERS et al.) see col 1, lines 8-13; col 5, line 67 to col 7, line 27; Example 17, Run 19; claim 1	1, 3, 5

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.